NEVADA FOREST HEALTH HIGHLIGHTS 2019

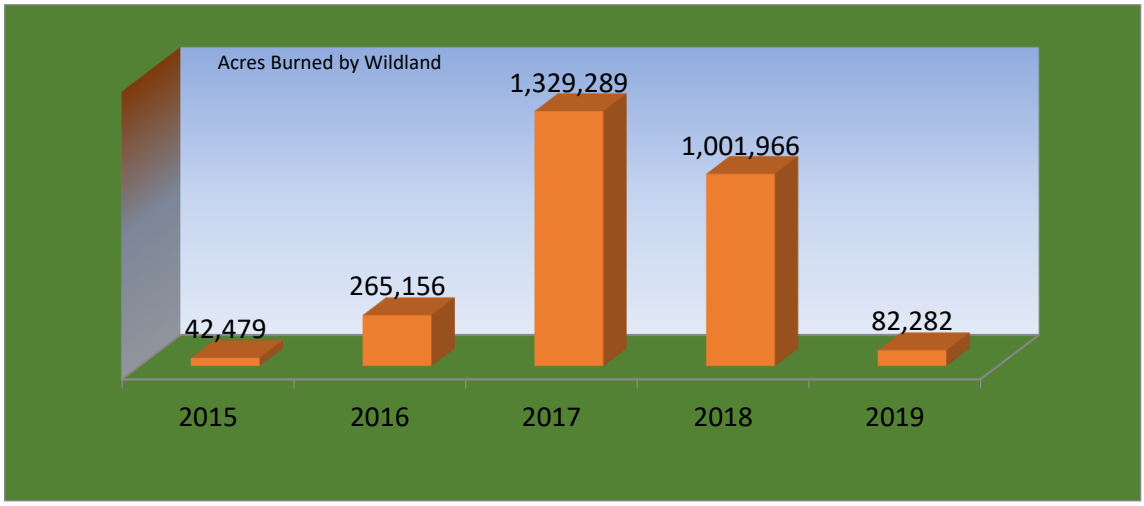
The Forest Resource

Nevada is unique because its forested component among the western states, is made up of 314 forested mountain "islands" separated by wide non-forested basins. Eighty-six percent of the state is non-forest and approximately 83% of the land is federally owned. Although the area of forest land is small, the value of the forest resource is immeasurable in terms of commodities, recreational use, and aesthetic properties. Healthy wildland, and urban forests provide multiple benefits to Nevada's diverse population. Nevada's forests vary from pinyon and juniper woodlands, mixed conifer forests, and alpine forest cover types. Nevada's 11.1 million acres of forestland produces little commercial timber; however, they do provide other wood products, important watershed protection, wildlife habitat, and recreational opportunities. Together with the urban forests in the state's communities, Nevada's forests are a critical resource in this sparsely forested state.

The majority of the forested lands are owned by the federal government, with approximately 866,900 acres of forestland in state or private ownership. From a statewide perspective the total of all forestlands (76%) are composed of pinyon and/or juniper woodlands. The other forest types are found in riparian areas, the mid, and high elevations in the state's 314 mountain ranges. Detailed information is available from the Interior West FIA.

Forest Health Highlights

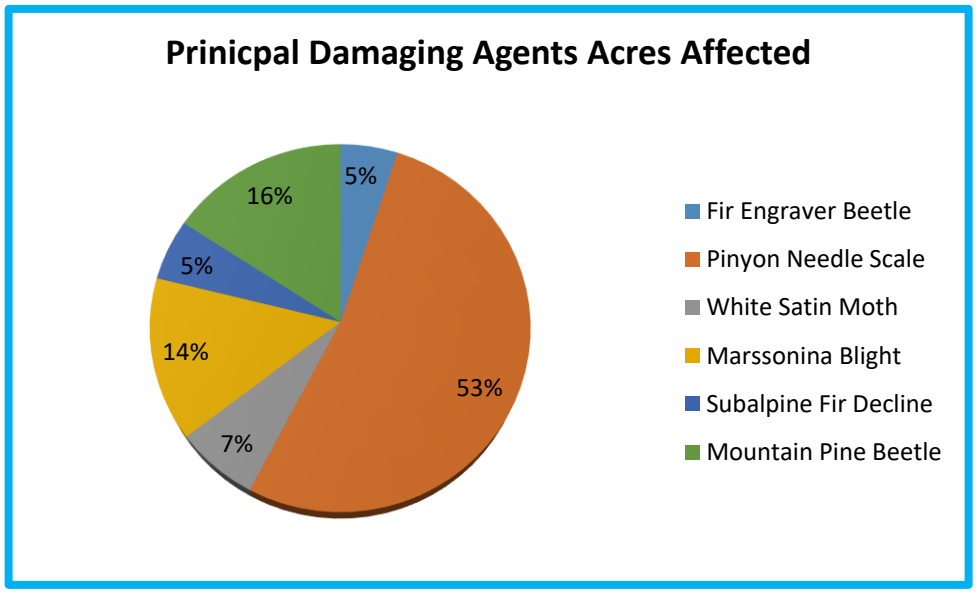
Nevada's forests are host to many common pests which plague western forests. Widespread stress to trees, brought on by drought conditions is a concern every year in Nevada. These conditions weaken individual trees creating favorable conditions for native and non-native pests. Wildfire is a major change component for Nevada's forest and rangelands. In 2019, Nevada experienced a very slow



fire season. Approximately 82,282 acres were burned in 2019 as compared to 1,001,966 acres in 2018. Natural fire starts were down due to very few thunderstorms throughout the summer. The majority of the fires occurred in sagebrush ecosystems, however some pinyon juniper woodlands, burned mainly in Elko County.

Forest health issues range at varying degrees, but no large-scale outbreaks were recorded in 2019. In 2019, total recorded damage is approximately 40,500 acres. This is approximately 14,000 acres less damage recorded as compared to 2018. Pinyon Needle Scale caused the most damage statewide affecting approximately 18,344 acres. Marssonina Blight in Aspen showed record damage on 7,750 acres. Damage from Mountain Pine Beetle was recorded on 5,499 acres affecting mainly lodgepole, limber, whitebark, western white, and bristlecone pine. This was an increase in damage from 2018 which only recorded 2,558 acres. and mainly occurred in the higher elevations throughout the state. Some damage areas covered more than 100 acres which is cause for some concern, and stand swill be monitored in 2020.

Fir Engraver beetle damage decreased in 2019 by more than 5,200 acres. Total damage recorded is approximately 1,746 acres in the mixed conifer forests statewide.



Subalpine fir decline is a root disease complex that damages sub-alpine fir and white fir, which increased slightly to 1,870 acres. This complex is mainly casued by Annosum root disease, and western balsam bark beetle, and other wood borers. The majority of this damage was confined to the Jarbridge Mountains, in northeast Nevada.

White Satin Moth a non-native insect pest continues to be detected throughout Nevada with the greatest impacts being in Carson Range and the Santa Rosa Range. Aerial surveys detected 2,399 acres statewide which is a 470 acre increase from 2018. The main significant change was the decrease in the severity of defoliation. In 2019 defoliation rates were light to moderate with only 25%-50% of tree crowns being defoliated. This was likely due to the long, cold wet spring that extended into early summer. Even in early June, areas near Spooner Summit showed very few active caterpillars with many not even emerging. In the previous two years, caterpillars were plentiful and very active by Memorial Day.

A cooperative study between the University of Nevada, Nevada division of Forestry, and Nevada State Parks is ongoing to study the effects from White Satin Moth. This study is researching the effects of tree genetics, soils and water tables have

differences on how levels of damage the pest causes and if better management guidelines be developed. For additional information see the Nevada Division of Forestry web site.

Forest Health Project Highlights

The Nevada Division of Forestry worked cooperatively with Nevada State Parks with a pinyon/juniper sanitation thinning to remove pinyon blister rust and juniper pocket rot infected trees from a dense 17 acre stand adjacent to the park administrative site. The project was implemented adjacent to, and around the administrative site used by park staff. This project had the added benefit of reducing fuel loads near park infrastructure. Existing stands exceeded 200 tree per acre with many trees being infected by pinyon blister rust and juniper pocket rot. This project thinned stands to a 30-35 foot spacing, while retaining 50-60 trees per acre. Pinyon and juniper trees already infected by both pathogens were removed first with and stand then thinned to the spacing guidelines. The best formed highest quality trees were left on site and created a park like stand. All slash was chipped and broadcasted back onto the site. This assisted with retaining nutrients on site and help prevent soil erosion. Firewood sized material was left for use by park staff, and for the park campgrounds. All work was completed by Nevada Division of Forestry Conservation Camp Crews from the Pioche Conservation Camp.

Stand Density Prior to treatment in the background

Post Treatment at park Administrative site

Completed Treatment

The Nevada Division of Forestry completed 10 acres of Verbenone treatments on private lands southeast of Ely, Nevada. Verbenone pouches were used to protect high value landowner trees from adjacent federal land that were experiencing bark beetle attacks. This projected was carried out with the assistance of the landowners. They assisted with putting out the pouches and learning how to replace them as they lost efficacy. Additional verbenone pouches were to be installed mid-summer by the landowners. Monitoring in fall 2019, showed that the

verbenone was successful in preventing attacks in the lodgepole pine and even the pinyon pine from Mountain pine beetle, and pinyon engraver beetle respectively. Additional treatment in 2020 may be carried out, depending on bark beetle presence on adjacent federal lands.

The Nevada Division of Forestry completed a cooperative restoration project with the Southern Nevada Water Authority (SNWA), in Clark County Wetlands Park, in Henderson, Nevada. This is a large 2,000 plus acre urban park that has been converted into wetlands and forested areas due to the availability of water from the Las Vegas Wash. This project focused on removal of invasive salt cedar, and restoration of native vegetation and trees. An NDF subgrant was issued to SNWA using USFS Forest Health CPG grants, and the SNWA was responsible for contracting all the removal work and restoration work. All eradication work has been completed in the restoration effort is currently underway and will be completed in the winter of 2020-2021. SNWA will monitor the site for any re-growth of the salt cedar and treat with herbicide.

Equipment in action

Completed treatment area

Statewide Trapping Program

The Nevada Division of Forestry cooperates with the Nevada Department of Agriculture to conduct trapping and monitoring of native and non-native insects. The Nevada Division of Forestry mainly traps native bark beetle populations to monitor trends and populations. The focus is placed mainly on mountain pine beetle, pine engraver, western pine beetle, and fir engraver beetle. Three sites are selected statewide for the bark beetle survey. Sites are selected based on stand species composition, elevation, and risk of potential outbreaks. Funnel lindgren traps are serviced every two weeks and samples sent to the Nevada Department of Agriculture. As in recent years populations and trends have remained consistent with only endemic populations being present.

Nevada Department of Agriculture conducts Asian defoliator, exotic wood borer surveys, gypsy moth, palm commodity survey, and pine shoot beetle surveys. The Asian defoliator survey has sites selected based on host availability, use and/or risk of introduction. During the 2018 season, 300 traps were placed in 5 counties within Nevada. The traps are serviced three times, approximately once a month, and then were removed September 2018. All suspect specimens were negative.

The exotic wood borer survey had eleven sites selected and four sites for the exotic light trap survey. Sites were selected based on high potential risk of introduction and/or observed damage conducive to target pests. Also, sites that had not been previously surveyed were favored. Two-four 12 funnel lindgren traps, with appropriate lure(s), were placed at each EWB site, for a total of 20 traps. Each trap was serviced as close to every 30 days as possible. Samples have been processed and all were negative for target pests. Four sites; 1 in Carson City Co., 2 in Washoe Co. and 1 in Lyon Co., were selected to conduct light trap surveys. Each site was visited four times, for a total of 16 visits. At each visit two traps, a mercury vapor light and a fluorescent UV light, were set up at sunset and monitored until midnight or until temperatures drop below 50 degrees Fahrenheit (10 degrees C). During the survey pictures were taken and samples collected. All suspect specimens collected were negative.

The Gypsy Moth survey was conducted and set 212 delta traps with a lure for European and Asian gypsy moths and were placed in all 17 counties in Nevada. Traps were placed in May and June and removed in Sept. and Oct. All traps were determined to be negative.

The Palm Weevil Commodity Survey is very important in southern Nevada due to the number of palms used as landscape and park trees. In 2018 120 traps were placed in Clark Co. near Las Vegas; 40 bucket traps, 40 Jackson traps and 40 blue sticky traps. The traps are placed in areas not previously surveyed and near host trees or along likely pathways. Traps are serviced as close to every 30 days as possible. Samples are collected if a suspect is found and lures replaced. All samples collected were confirmed negative.

The Pine Shoot Beetle Survey placed 10 traps in 4 Counties in Nevada. Sites that were previously not surveyed, have a high probability of introduction and/or have valuable resources to protect were targeted. Each trap was serviced as close to every 30 day as possible. At each service a sample was collected, and lures changed if necessary. Samples have been processed and all were negative for the target pest.

For More Information:

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